ABSTRACT OF THE DISCLOSURE

The invention relates to macromolecules auto-assembled and photopolymerised around carbon nanotubes. Said macromolecules are essentially formed from rings of lipid compounds, polymerised about the nanotubes, said polymerised compounds being obtained from lipid molecules with one or two chains A, bonded to a group Z where A is a chain, $CH_3-(CH_2)_m-C\equiv C-C\equiv C-(CH_2)_n-$, where n and m, independently = whole numbers from 1 to 16 and Z is a polar head group embodied by a -COOH, -CO-NH-Y, -NH_2 or $N^+(R)_3$, where R is an alkyl with C_1 to C_4 and Y is a $-(CH_2)_4-C(R_1)-N(CH_2-COOH)_2$ group with R= H, or a COOH group, where A is a single lipid chain or a group of structure (I) or (II), where R2 = a COOH, or -CO-NH-Y_1 group with Y_1 = a $-(CH_2)_4-C(R_3)-N(CH_2COOH)_2$ group with R_3 = H or a COOH group, where Z and R_2 can also be neutral polar head groups of the sugar or polysaccharide type. The above is of application particularly to the protection and purification of nanotubes, as a hydrophobic molecule or membrane protein vector or as a molecular motor.